

“Crystals and Air” “Skiing with Wildlife” “A Refuge for Classic Skiing”

by Dave Kenagy

Here we are again, in late March, winding down the ski and snowshoeing season. While winter is still barely on our minds, let's take a look at cross-country skiing and snowshoeing on the Kenai National Wildlife Refuge ski trails.

First, remember that the Refuge ski trails are on a national wildlife refuge, where wildlife comes first. The main reason you have a refuge in your backyard is to maintain healthy populations of Alaskan wildlife species, by protecting the habitat they depend on.

The Headquarters ski trails are designed and maintained to minimize impacts to wildlife. But, they're also designed so you have a chance to see wildlife, and the birch/spruce forest in which they live. We call this wildlife-dependent recreation.

The ski trails are wide enough for classic cross-country skiing, but not quite wide enough for good skate skiing. The trails are groomed for classic skiing so you have a chance to ski a little slower, look around a bit more, and maybe see wildlife or evidence of it's passing.

Skiers report seeing coyotes, moose, red squirrels, eagles, ravens, woodpeckers, as well as the occasional tracks of wolves and late and early-season bears.

In addition to skiers, we also have a good number of snowshoers who use the trails. An increasing number of people have asked if they could snowshoe on the trails. So, in 2003 and 2004, we allowed snowshoers on a small portion of the ski trails.

We found that most snowshoes cause minimal damage to groomed trails. So, this year (2005) we permitted snowshoers on all ski trails.

My advice to you, should you decide to take up snowshoeing, is to buy lightweight snowshoes for enjoying groomed ski trails. They will easily support your weight on a groomed trail and are less tiring than the larger sizes.

Except for icy conditions, you don't need metal claws. And, unfortunately, large metal ice claws damage groomed trails. If you have snowshoes with large metal ice claws, please do the skiers a favor and walk on the sides of the trails.

A well-groomed ski trail has a delicate surface, and is easily damaged by foot traffic. Even so, we've set aside an area where winter hikers can roam around, too. This is the Keen-Eye Nature Trail Area.

A groomed ski trail passes through this area, but only a short length of ski trail affected by winter hikers. Because the trail is close to Refuge Headquarters, it's easy for us to groom it more frequently. So, if you're a winter hiker, check out the Keen-Eye Nature Trail Area, and maintain a "keen-eye" for wildlife.

I said that our trails aren't wide enough for skate skiing. Most aren't. But, there is one wonderful exception—Headquarters Lake. We groom the lake route wide enough for skate skiing. If you skate ski on the lake, even though you're going fast, keep your eyes open for wildlife and spectacular scenery.

Now you know what we do. How do we do it? First, meet your groomers—Dave Kenagy and Scott Slavik. We are Refuge trails rangers. In the summer we work with dirt; in the winter we work with snow.

Grooming ski trails is art, craft, and a little science. The two major components we work are snowflakes and air (or ice crystals and air).

There are basically four types of snow we deal with; new snow and old snow; wet snow and dry snow.

When we have new dry snow our first objective is to remove most of the air from the mixture, and break down the snowflakes into tiny ice crystals. The best way to do that is with a roller, which we don't have. The second best method, if snow is not too deep, is to use a drag, which we also do not have.

We simply use the track of our super-wide-track snowmachine to pack down the snow, followed by a weighted, "corrugated" pad attached to our renovator/groomer, to further compress the ice crystals.

When we're done, we have a several inch thick upper base layer of compressed ice crystals and air. Most of this base layer is very delicate. Footprints will damage it, but skis and snowshoes have enough flotation to leave the layer intact.

On top of this upper base layer, our renovator/groomer spreads a thin layer of loose ice crystals.

It is the surface ice crystals that allow you to ski classic cross-country, with grip and glide.

When skiing, the tiny surface ice crystals briefly dig into your cross-country ski wax or pack into the waxless pattern on the bottom of your skis for grip, then release and briefly melt for glide. The melting occurs in all but extremely cold temperatures.

The melted crystals are transformed to an ice layer over time, as skier after skier glides down the trail. Icy ski trails generally reduce the grip of cross-country skis, and the icy surface also makes turning and manoeuvring more difficult.

We can renovate the surface after skiers have made it icy. As long as temperatures are below freezing, and the upper base layer of snow is “dry,” renovation is easy. We have an excellent grooming tool that is made to do this very job.

The tool, which we pull with our snowmachine, is called a “Ginzu Groomer” by its manufacturer. It consists of a tubular metal frame to which spring-loaded, hardened steel tines are attached. The tines can be raised or lowered with an electric motor.

The tines break up the upper base layer, churn the mixture, add air, bring tiny sharp ice crystals to the surface, and smooth and compress the mixture back down with a weighted, corrugated, pad. And, voilà—we have a nice new base to ski on.

However, we can’t renovate forever. The tiny ice crystals in the upper base layer lose their sharpness over time. So, the more times we have to renovate without new snow, the poorer the final result.

There’s nothing better than new, dry snow for a nicely groomed ski trail.

When we have very wet snow, whether new or old, we do nothing. Any grooming or working of the snow will remove too much air from the mixture and result in an icy surface and upper base layer when temperatures drop and the mixture re-freezes.

However, if temperatures drop well below freezing in the evening, soft wet snow will quickly begin to re-crystallize, and grooming may be possible at night. We have sometimes groomed after dark to renovate trails.

We generally groom during the day, providing temperatures are cold enough. The trails do not set up as well as when we groom late in the evening, after skiers have gone home, but the result is entirely satisfactory.

That’s basically how we do the job of grooming at Kenai National Wildlife Refuge. If you skied or snowshoed the trails this past season we hope you had a good time, and saw wintertime wildlife.

We have a few summer upgrade plans for the trails to make skiing more fun and pleasurable. If have any ideas or suggestions for the Refuge ski trail system, please let us know. We may be able to complete the changes in time for next winter’s ski season.

Happy ski trails to you!

Dave Kenagy is the Refuge volunteer coordinator, and a trails ranger, who likes working with snow more than he likes working with dirt. Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.